REMARKS

The Examiner rejected claims 4, 8 and 9 under 35 USC 103(a) as being unpatentable over Kemp '337 in view of Seener and Olds. Applicant respectfully traverses this rejection.

Kemp '337 shows an accumulator 13 for ammonia. At the bottom of the accumulator 13 is an oil separation tank 29, for removing ammonia and entrained oil. The tank 29 has an outlet, shown as the pipe extending to solenoid valve 37. The solenoid valve 37 is opened at the beginning of each compressor-on operation.

Seener shows a solenoid valve 38 (see Fig. 1) that has an inlet connected to an oil reservoir 28 and an outlet connected to a compressor sump 11. The valve 38 opens when the level of oil in the sump 11 falls. A capacitive sensor 60 in the solenoid valve unit 30 senses the sump oil level. The compressor has a refrigerant inlet 12 separate from the sump 11. The outlet 18 of the compressor goes into a separator 24 for separating oil from the refrigerant.

Olds shows a cell block 12 for receiving and holding a refrigerant sample. A sensor 24 is attached to the cell block and communicates with a test chamber 26. The sensor 24 can be a thermal conductivity sensor. The sensor analyzes the refrigerant sample in a vapor phase, checking for impurities. This requires the test chamber 26 to be evacuated after each test.

The references do not each a thermal conductivity sensor located in a sump and above an outlet, with the sensor connected to and controlling the valve, as provided in claim 4 and its dependent claims. Nor do the

references teach sensing the thermal conductivity of fluid in a sump and opening and closing an outlet of the sump according to the thermal conductivity, as provided in claims 8 and 9. Claim 8 has been amended to clarify what was previously understood; namely that the sump has both oil and ammonia.

There is no suggestion to modify the system of Kemp '337 by using a thermal conductivity sensor to monitor the oil level in a sump. Nothing in the references suggest such a modification. Indeed, Seener teaches the use of a capacitive sensor 60 to sense the oil level in a sump. While Olds does teach using a thermal conductivity sensor, it is only to monitor refrigerant vapor. The refrigerant is R-11, R-12, R-22 and R-134a. Olds does not mention ammonia. One with ordinary skill in the art would not look to Olds to locate a thermal conductivity sensor in a sump that contains liquid ammonia and oil. Olds requires a relatively pristine environment for its sensors; the test chamber is evacuated after each test.

Nor is there any suggestion to modify the system of Kemp '337 to close solenoid valve when the oil dips below a predefined level. Seener <u>opens</u>, not closes, its solenoid valve when the level of oil falls below a certain level, in order to maintain the level of oil to the sump. This is opposite of Applicant's invention.

The references simply do not teach monitoring a level of oil in a sump and when the oil level is high enough, opening the valve to reduce oil level. Nor do the references teach monitoring the level of oil in a sump containing both oil and ammonia by measuring the thermal conductivity of the liquid in the sump. The references do not recognize the problem of a sump

containing both oil and ammonia, as does Applicant's invention. Seener's sump likely contains oil with little or no ammonia; Seener uses a separator 24 on the compressor outlet.

The Examiner states that Seener and Olds provide the necessary suggestion to modify Kemp '337, but Applicant disagrees. Seener's statement of using a sensor without moving parts and not collecting ferrous particles applies to the capacitive sensor 60 that monitors the level of oil in the compressor sump. When operating a compressor, having a low level of oil in the sump is undesirable because operating the compressor without oil could damage the compressor.

Why would one of ordinary skill in the art modify Kemp '337? Kemp '337 opens the sump valve at the beginning of each compressor-on operation. Thus, every time the compressor begins operation, Kemp '337 ensures that the compressor has oil. Kemp '337 does this independent of fluid levels in the accumulator sump and of fluid levels in the compressor sump or oil pan. Adding a sensor without moving parts and that does not collect ferrous particles has nothing at all to do with Kemp '337. Modifying Kemp '337, as suggested by the Examiner, would require a change in philosophy of Kemp '337.

Olds states that the sensor could be a thermal conductivity sensor instead of an infrared sensor. Because Kemp '337 does not use a sensor to determine when to open and close the solenoid valve 37, there is no suggestion to modify Kemp '337. Because Seener uses a sensor to determine when to fill a compressor oil pan or sump based on the oil level of that sump, there is no suggestion to provide a sensor that is capable of

distinguishing the oil and refrigerant. Nor is there any teaching of distinguishing between oil and ammonia.

Thus, claims 4, 8 and 9 are patentable over the references.

The Examiner also rejected claims 5-7 under 35 USC 103(a) as being unpatentable over Kemp '337 in view of Seener and Olds and further in view of Kemp '956.

As these claims are dependent upon claim 4, the allowability of which has already been discussed above, Applicant respectfully traverses this rejection.

In view of the foregoing, it is submitted that all of the claims in the application are allowable, and such allowance is respectfully requested.

If any additional fees are required, please charge our deposit account no. 23-2770.

Respectfully submitted,

Geoffrey A. Mantooth, Reg. No. 32,042
Decker, Jones, McMackin, McClane, Hall & Bates
Burnett Plaza, Suite 2000
801 Cherry Street, Unit #46
Fort Worth, Texas 76102
(817) 336-2400 Phone
(817) 336-2181 Fax

Attorney for Applicant

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